

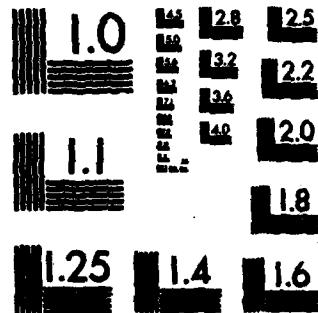
AD-A121 649 19319A MLRS MISSILE NUMBER BN-175 BN-141 BN-172 ROUND  
NUMBER V-324/PQ-64. (U) ARMY ELECTRONICS RESEARCH AND  
DEVELOPMENT COMMAND WSMR NM ATM.. D C KELLER SEP 82  
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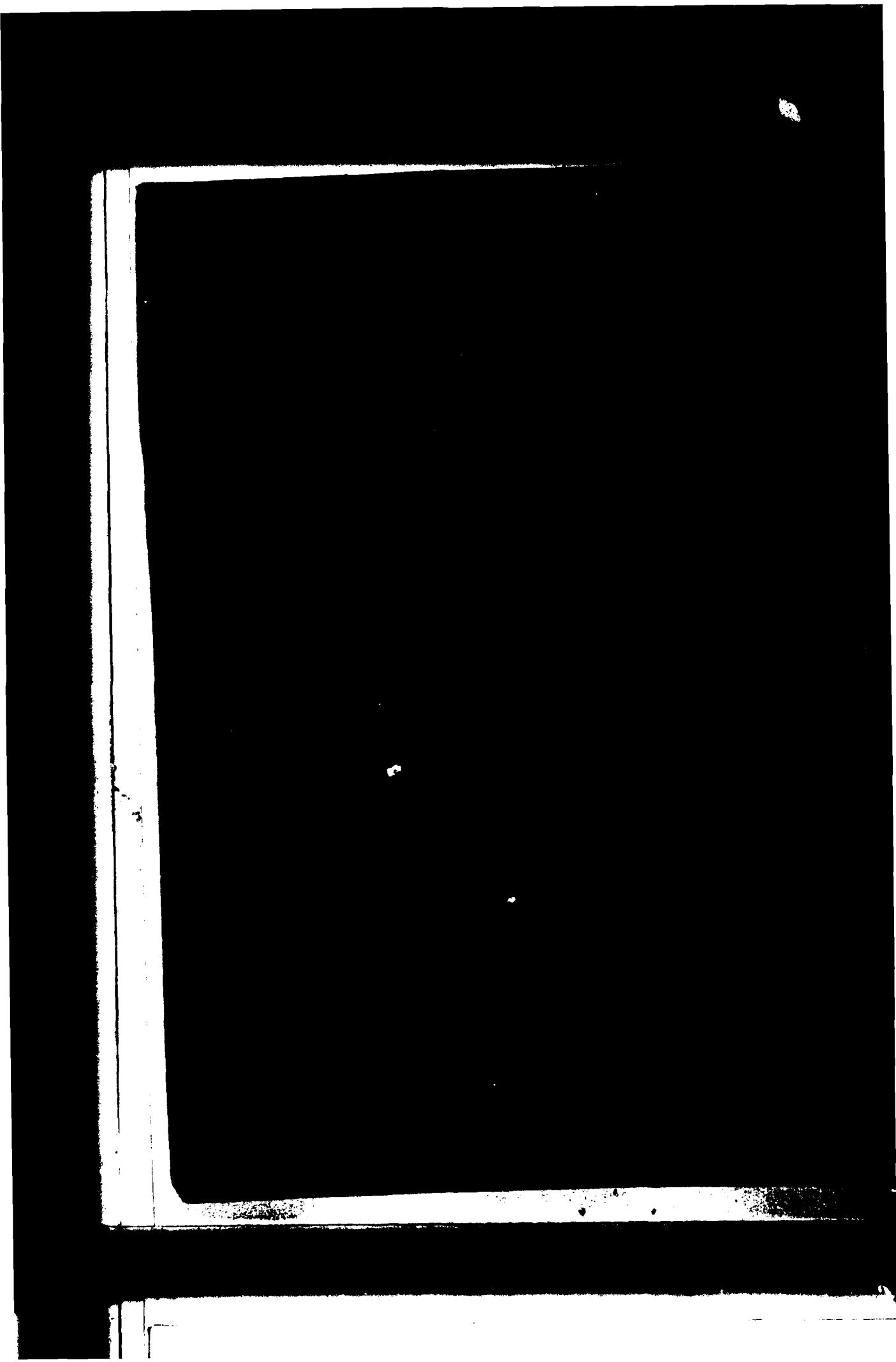
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20. KEY WORDS (Continue on reverse side if necessary and identify by block number)	DTIC ELECTE S NOV 22 1982 A	
21. ABSTRACT (Continue on reverse side if necessary and identify by block number)  Meteorological data gathered for the launching of the 19319A MLRS, Missile Number BN-175, BN-141, BN-172, Round Number V-324/PQ-64, V-325/PQ-65 V-326/PQ-66 are presented in tabular form.		

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## INTRODUCTION

19310A MLRS, Missile Numbers BN-141, BN-175 and BN-172, Round Numbers V-324/PQ-64, V-325/PQ-65 and V-326/PQ-66, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1508:21, 1508:26 and 1508:33 MDT, 24 Sep 1982. The scheduled launch times were 1500, 1500:045 and 1500:09 MDT.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm/m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometer at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from Pfloat-balloon observations at:

### SITE AND ALTITUDE

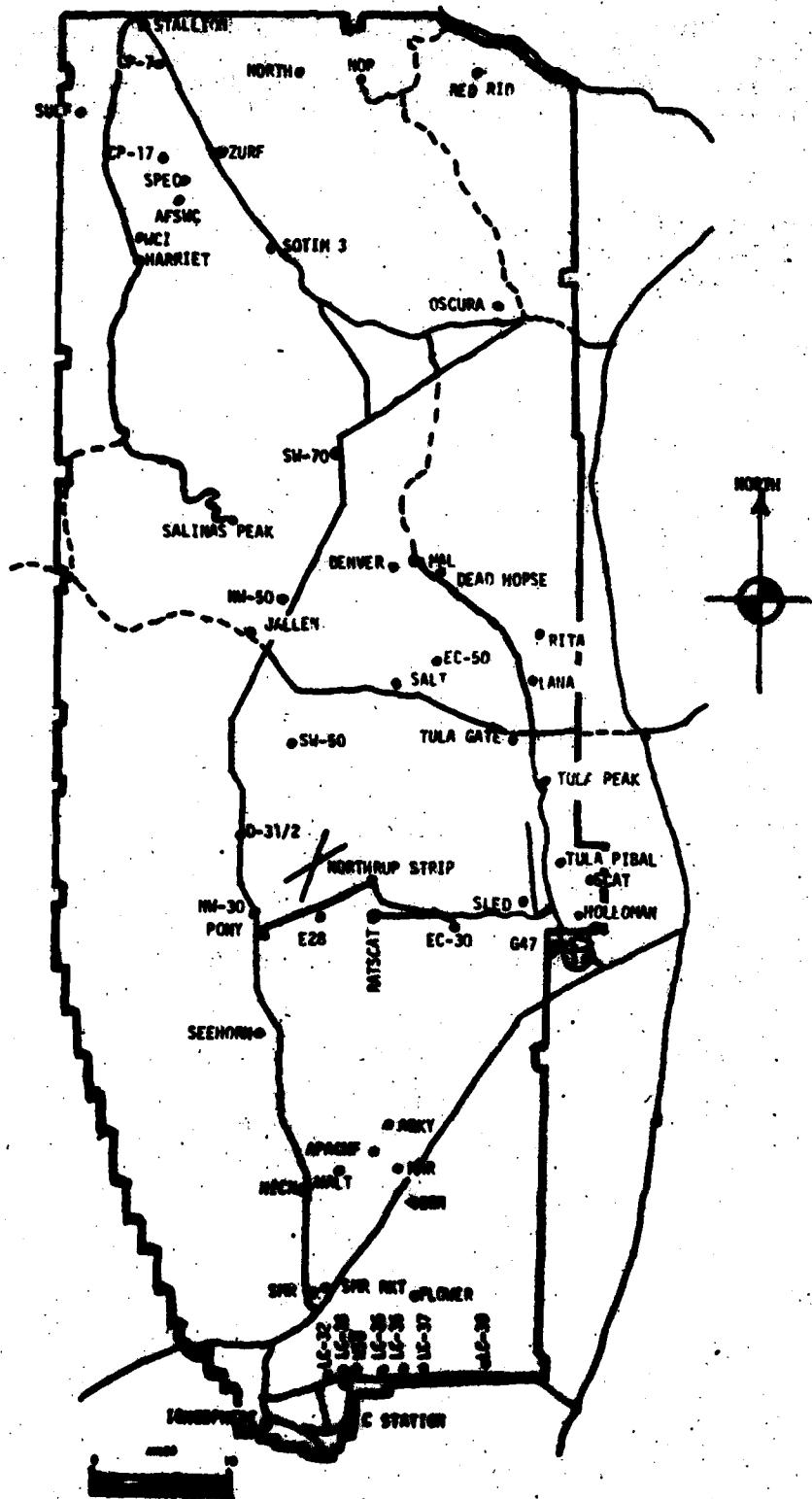
WSD 2KM  
DON 2KM

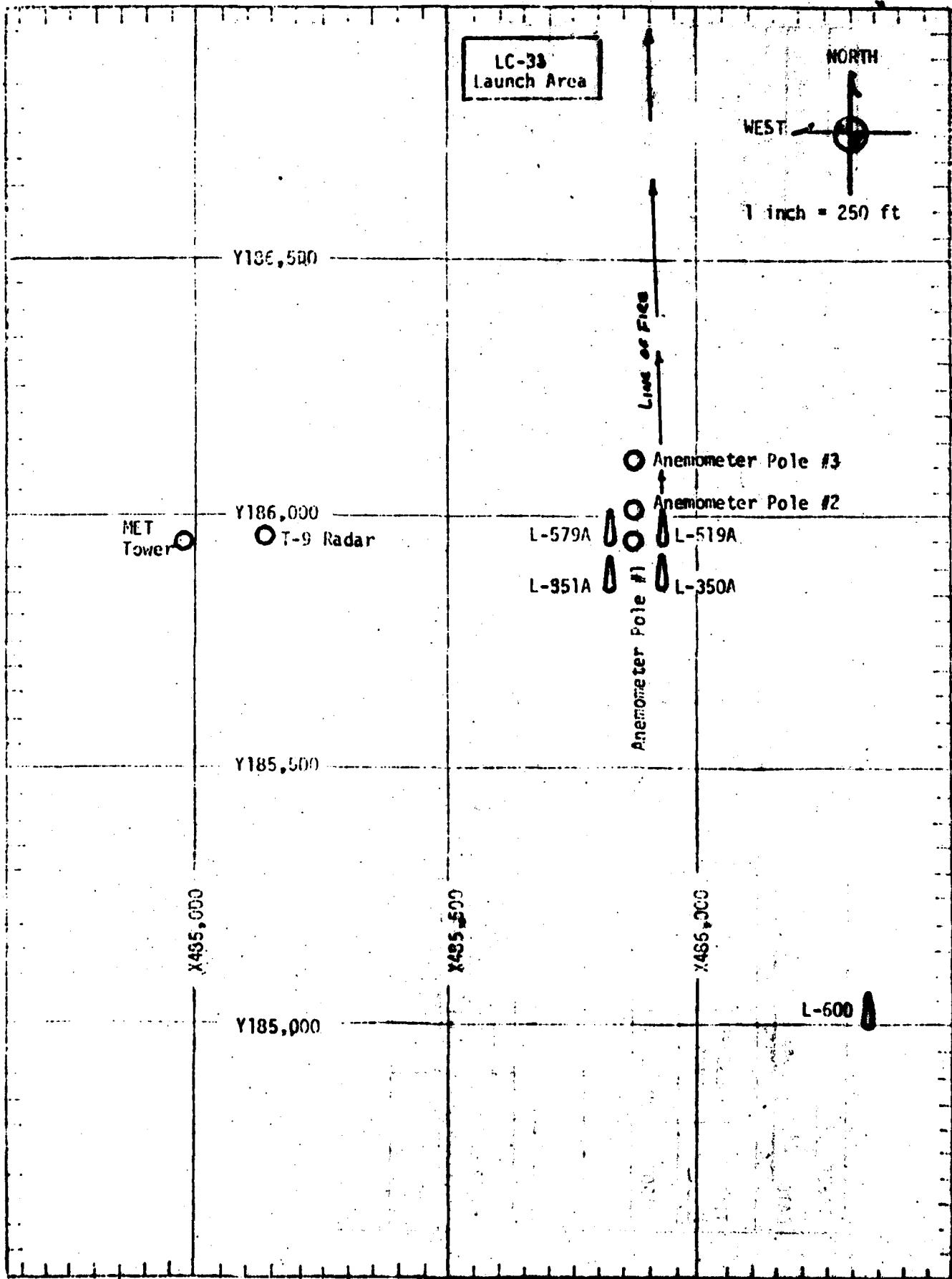
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

### SITE AND TIME

LC-37	1200 MDT
WSD	1300 MDT
LC-37	1400 MDT
WSD	1505 MDT

## WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

STATION LC-33 E & A

DRAMA

PSYCHOLOGIC COMPUTATION

TIME:	1508
DRY BULB TEMP.	30.2
WET BULB TEMP.	17.2
WET BULB DEPR.	13.0
DEW POINT	9.9
RELATIVE HUMID.	28

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	015	13	T -30	013	10	T -30	014	15
T -20	015	11	T -20	010	12	T -20	015	16
T -10	015	13	T -10	003	09	T -10	024	16
T 0.0	010	10	T 0.0	013	07	T 0.0	021	15
T +10	010	09	T+10	002	10	T+10	009	15

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	024	07	T -30	021	10
T -20	042	10	T -20	020	12
T -10	030	10	T -10	012	10
T 0.0	006	09	T 0.0	014	12
T +10	007	10	T+10	014	12

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	020	12	T -30	012	13
T -20	013	12	T -20	012	14
T -10	004	11	T -10	013	13
T 0.0	007	13	T 0.0	013	13
T +10	006	13	T+10	009	13

TABLE 4

## T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 24 Sep 1982

SITE: WSD  
 TIME: 1508 MDT  
 WSTM COORDINATES:  
 X= 488,852.29  
 Y= 184,982.45  
 H= 3,993.75

SITE: DON  
 TIME 1508 MDT  
 WSTM COORDINATES:  
 X= 511,988.37  
 Y= 247,396.36  
 H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
<b>SURFACE</b>		
150	030	14
210	015	14
270	023	14
330	028	12
390	022	13
500	031	11
650	026	10
800	019	07
950	312	06
1150	298	08
1350	300	08
1550	302	08
1750	289	07
2000	Balloon Burst	

Data obtained from  
 Single-Theodolite Tracked  
 Pilot-balloon observations.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
<b>SURFACE</b>		
150	350	04
210	337	08
270	337	09
330	339	09
390	341	10
500	343	11
650	346	12
800	348	12
950	348	12
1150	341	11
1350	321	10
1550	302	09
1750	286	10
2000	290	11

Data obtained from  
 Single-Theodolite Tracked  
 Pilot-balloon observations.

TABLE 5

AIMING AND T-TIME COMPUTER MET MESSAGES  
24 SEPTEMBER 1982

LC-37 1200 MDT	WSD 1300 MDT	LC-37 1400 MDT	WSD 1505 MDT
METCM1324063	METCM1324064	METCM1324063	METCM1324064
241800124881	241900122884	24200124880	242110122882
00587004 30060881	00027014 30450884	00560005 30450880	00053010 30700882
01002010 30000871	01042012 30230874	01587010 30230870	01039013 30380872
02637016 29820847	02038010 29890849	02046009 30010846	02025015 30020848
03011007 29590809	03041004 29650811	03022005 29750808	03037007 29700810
04538008 29300763	04529008 29320766	04546008 293 0763	04557007 29380765
05562005 28920720	05516008 28920722	05532008 28930720	05537008 28930765
06544002 28480678	06443002 28460680	06500003 28480678	06538005 28470680
07243003 28030639	07309003 27980641	07388003 27970638	07501005 28020640
08627003 27680601	08631005 27720603	08605004 27660601	08574009 27680602
09638009 27470565	09631009 27460566	09609011 27460565	09615011 27410566
10590008 27250531	10595009 27200532	10592010 27180530	10579011 27120532
11565006 26910498	11560007 26870500	11548009 26870498	11512010 26860499
12589013 16360453	12611015 26320454	12575014 26300452	12594017 26360453

STATION ALTITUDE 4051.37 FEET MSL  
24 SEP. 82 1200 HRS MDT  
ASCENSION NO. 97

SIGNIFICANT LEVEL DATA  
2670180097  
LC-37  
TABLE 6

GEODETIC COORDINATES  
32°40'17.5" LAT DEG  
106°31'23.2" LON DEG

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREES CENTIGRAVE	REL.HUM. PERCENT
881.3	4051.4	25.7
862.3	4680.5	24.7
850.0	5093.5	24.2
823.9	5985.6	21.7
811.3	6424.6	21.9
737.9	9104.5	16.8
700.0	10571.2	13.1
652.0	12515.9	8.0
612.9	14180.3	3.4
607.4	14420.7	3.1
598.6	15299.0	3.1
570.8	16072.9	1.3
561.9	16488.6	1.3
527.4	18157.6	-1.0
500.0	19549.5	-3.9
455.0	21969.2	-10.0
425.6	23645.8	-11.6
400.0	25206.6	-15.8

STATION ALTITUDE 4051.17 FEET MSL  
24 SEP. 82 1200 HRS MDT  
ASCENSION NO. 97

UPPER AIR DATA  
2670160097  
LC-37  
TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	AIR VENPOINT PERCENT	REL.HUM. PERCENT	SOUND KNOTS	WIND DATA WIRECTION (DEGREES LIN.)	WIND SPEED KNOTS	INDEX OF REFRACTION
4051.4	881.3	25.7	11.5	41.0	1021.3	675.4	330.0	4.1
4500.0	867.7	25.0	10.0	38.9	1008.5	674.5		1.000265
5000.0	852.8	24.3	7.2	33.4	994.2	673.4		1.000277
5500.0	838.0	23.1	6.1	33.4	981.4	671.9		1.000265
6000.0	823.5	21.7	5.6	35.0	968.9	670.4		1.000259
6500.0	809.1	21.0	5.7	35.1	951.7	670.3		1.000256
7000.0	795.0	20.8	5.1	35.9	938.1	669.3		1.000252
7500.0	781.0	19.9	4.6	36.6	924.8	668.2		1.000248
8000.0	767.3	18.9	4.0	37.4	911.6	667.1		1.000239
8500.0	753.9	18.0	3.5	38.1	898.6	666.0		1.000235
9000.0	740.6	17.0	2.9	38.8	885.6	664.9		1.000231
9500.0	727.5	15.8	1.2	37.1	874.0	663.4		1.000225
10000.0	714.5	14.5	-0.8	34.7	862.6	661.8		1.000219
10500.0	701.8	13.3	-2.9	32.3	851.3	660.2		1.000212
11000.0	689.1	12.0	-3.5	33.6	839.8	658.7		1.000209
11500.0	676.6	10.7	-3.8	35.8	828.4	657.2		1.000206
12000.0	664.4	9.4	-4.3	37.9	817.2	655.0		1.000203
12500.0	652.4	8.0	-4.7	39.9	806.2	654.1		1.000200
13000.0	640.4	6.7	-4.7	44.1	795.2	652.5		1.000198
13500.0	628.6	5.3	-4.7	48.3	784.4	650.9		1.000196
14000.0	617.0	3.9	-4.9	52.5	773.8	649.3		1.000193
14500.0	605.6	3.1	-11.4	35.5	762.5	648.0		1.000183
15000.0	594.3	3.1	-15.6	23.8	748.6	647.9		1.000176
15500.0	583.3	2.6	-16.7	19.0	736.3	647.2		1.000171
16000.0	572.4	1.5	-19.6	19.0	725.5	645.9		1.000168
16500.0	561.7	1.3	-20.4	18.0	712.4	645.6		1.000165
17000.0	551.1	.6	-21.3	17.4	700.8	644.8		1.000162
17500.0	540.7	-1	-22.3	16.8	689.4	644.0		1.000159
18000.0	530.6	-8	-23.3	16.2	678.2	643.2		1.000156
18500.0	520.3	-1.7	-24.2	16.0	667.0	642.0		1.000153
19000.0	510.6	-2.0	-25.0	16.0	657.5	640.8		1.000151
19500.0	500.9	-3.6	-25.9	16.0	647.5	639.6		1.000148
20000.0	491.3	-5.0	-27.0	15.8	636.0	638.1		1.000146
20500.0	481.8	-6.3	-28.2	15.6	626.7	630.5		1.000143
21000.0	472.5	-7.6	-29.4	15.4	619.5	635.0		1.000141
21500.0	463.4	-8.8	-30.5	15.2	610.5	633.5		1.000139
22000.0	454.4	-10.0	-31.7	15.0	601.5	632.0		1.000136
22500.0	445.5	-10.6	-31.9	15.5	590.9	631.4		1.000134
23000.0	436.8	-11.1	-32.1	15.6	580.5	630.8		1.000132
23500.0	428.3	-11.6	-32.4	15.9	570.3	630.1		1.000129

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 4031.37 FEET MSL  
24 SEP. 82 1200 HRS MDT  
ASCENSION NO. 97

UPPER AIR UNIT  
2670180047  
LC-37  
TABLE 7 Cont'd

GEODETIC COORDINATES  
32°40'15" LAT DEG  
106.31232 LON DEG

GEOMETRIC PRESSURE ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES DEGREES CENTIGRADE	WEATHER DATA			INDEX OF REFRACTION
		REL. HUM. PERCENT	SPEED OF SOUND METER KNOTS	DIRECTION DEGREES (10)	
29999.0	419.8	-12.7	-32.9	16.5	1.000127
29598.0	911.5	-14.0	-33.6	17.1	1.000125
29197.0	963.4	-15.3	-34.3	17.7	1.000123

STATION ALTITUDE 4051200 FEET MSL  
24 SEP. 62  
ASCENSION NO. 97

MANDATORY LEVELS  
2n70180097  
LC-37  
TABLE 8

GEODETIC COORDINATES  
32.440175 LAT DEG  
106.31232 LONG DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE DEGREES	AIR DEPOINT CENTIGRADE	HUMIDITY PERCENT	WIND DATA DIRECTION DEGREES(10) VELOCITY(KN)	SPEED KNOTS
850.0	5090.	24.2	6.5	32°	9999.0	9999.0XX
800.0	6819.	21.1	5.3	36°	9999.0	9999.0XX
750.0	8640.	17.7	3.3	3b°	304°0	7.0
700.0	10561.	13.1	-3.2	32°	315°5	5.4
650.0	12585.	7.8	-4.7	41°	122°8	2.6
600.0	14729.	3.1	-13.3	29°	354°8	4.6
550.0	17032.	*5	-21.4	17°	345°8	9.4
500.0	19521.	-3.9	-26.0	16°	317.7	6.5
450.0	22215.	-10.3	-31.6	15°	335.0	13.0
400.0	25166.	-15.6	-34.6	18°		

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 3989.00 FEET MSL  
29 SEP. 82  
ASCENSION NO. 485

SIGNIFICANT LEVEL DATA  
2670020485  
WHITE SANDS  
TABLE 9

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

PRESSURE GEOMETRIC MILLIBARS MSL FEET	ALTITUDE DEGREES CENTIGRADE	TEMPERATURE AIR DEPN/IN DEGREES CENTIGRADE	REL.HUM. PERCENT
883.6	3989.0	29.5	36.0
868.2	4501.2	26.3	37.0
857.0	5112.5	24.1	41.0
827.6	5877.9	22.3	40.0
807.8	6569.3	22.3	35.0
769.0	7966.9	19.1	40.0
731.2	9382.9	16.0	44.0
706.0	10593.5	12.6	39.0
676.5	11531.7	10.4	34.0
636.8	13425.9	4.6	49.0
624.9	13677.5	4.2	41.0
599.9	14768.6	3.9	16.0
559.9	16510.2	.6	16.0
526.9	18097.2	-1.5	16.0
506.0	19560.2	-4.5	16.0
486.9	21176.3	-10.0	16.0
423.5	23784.5	-13.1	16.0
420.0	25266.6	-16.6	16.0

STATION ALTITUDE 3989.00 FEET MSL  
24 SEP. 82 1300 HRS NDT  
ASCENSION NO. 485

UPPER AIR DATA  
2670020465  
WHITE SANDS  
TABLE 10

GEODETIC COORDINATES  
32°40'03" LAT UEG  
106°37'03" LON UEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	WIND POINT CENTIGRADE	REL.HUM. PERCENT	SOUND WAVE KNOTS	WIND DATA INDEX OF REFRACTION	WIND DATA			
							1010.0	1010.5	1010.5	1010.5
3989.0	865.0	79.5	12.9	36.0	679.9	14.0	14.0	13.9	13.9	1.000267
4520.0	865.3	29.4	12.8	56.6	679.8	15.0	15.0	15.0	15.0	1.000267
4520.0	865.2	26.3	10.5	37.0	1064.5	15.0	15.0	15.0	15.0	1.000277
5666.0	853.3	24.5	10.1	40.3	993.2	16.4	16.4	16.4	16.4	1.000274
5556.0	836.6	23.2	9.0	40.5	980.7	17.7	17.7	17.7	17.7	1.000268
6386.0	824.1	22.3	7.6	38.6	967.0	20.2	20.2	20.2	20.2	1.000261
6590.0	869.8	22.3	5.6	33.7	950.7	17.1	16.6	16.6	16.6	1.000251
7070.0	795.6	21.3	5.1	35.2	937.3	10.9	7	7	7	1.000248
7539.0	781.7	20.2	5.0	37.7	924.5	6.7	7.3	7.3	7.3	1.000245
8869.0	769.1	19.0	5.2	40.1	911.6	667.4	385.2	385.2	385.2	1.000242
6590.0	754.5	17.9	4.7	41.5	899.2	660.1	298.6	298.6	298.6	1.000239
9386.0	741.2	16.6	4.2	42.9	880.7	664.6	294.5	294.5	294.5	1.000235
9539.0	728.1	15.7	3.5	43.1	874.7	665.4	290.2	290.2	290.2	1.000230
10566.0	715.1	14.3	1.4	41.5	663.7	611.0	285.7	285.7	285.7	1.000223
10566.0	702.6	12.9	-0.6	39.4	852.8	659.9	281.6	281.6	281.6	1.000217
11093.0	689.7	11.6	-2.6	36.6	841.3	658.4	267.0	267.0	267.0	1.000211
11566.0	677.3	10.5	-4.6	34.2	H29.9	656.9	256.0	256.0	256.0	1.000205
12388.0	664.9	9.0	-6.7	37.7	819.0	655.2	242.2	242.2	242.2	1.000203
12580.0	652.7	7.4	-6.7	41.7	810.4	653.4	195.0	195.0	195.0	1.000201
13088.0	640.0	5.9	-9.9	45.6	790.0	651.0	185.6	185.6	185.6	1.000196
13560.0	629.1	4.5	-5.9	16.6	787.5	649.9	205.4	205.4	205.4	1.000193
14984.0	617.4	4.1	-10.2	34.2	774.4	649.3	298.6	298.6	298.6	1.000189
16566.0	600.9	4.0	-14.9	23.9	760.6	648.9	351.3	351.3	351.3	1.000179
17330.0	594.7	3.5	-18.6	18.6	748.2	648.2	359.0	359.0	359.0	1.000174
18588.0	583.6	2.6	-19.3	18.0	736.7	647.2	24.0	24.0	24.0	1.000171
18600.0	572.7	1.7	-20.0	18.1	725.3	646.1	559.0	559.0	559.0	1.000168
18600.0	562.0	0.8	-20.6	18.0	714.2	645.0	552.1	552.1	552.1	1.000165
17666.0	551.0	0.0	-21.7	17.5	702.7	644.1	346.9	346.9	346.9	1.000162
17330.0	541.1	-0.7	-22.8	16.1	691.2	643.3	342.1	342.1	342.1	1.000159
16666.0	530.9	-1.4	-23.8	16.1	680.0	642.5	336.4	336.4	336.4	1.000156
1520.0	520.6	-2.3	-24.7	16.1	669.5	641.3	329.8	329.8	329.8	1.000153
1510.0	510.9	-3.0	-25.5	16.0	659.3	640.1	321.9	321.9	321.9	1.000151
1500.0	501.2	-4.0	-26.3	16.0	649.2	630.9	313.7	313.7	313.7	1.000149
1490.0	491.5	-5.5	-27.3	16.0	639.5	637.5	311.7	311.7	311.7	1.000146
1480.0	482.0	-6.7	-28.3	16.0	630.0	630.3	315.3	315.3	315.3	1.000143
1470.0	473.7	-7.9	-29.3	16.0	620.0	634.0	324.0	324.0	324.0	1.000141
1460.0	465.6	-9.1	-30.2	16.0	611.4	633.2	330.1	330.1	330.1	1.000139
1450.0	456.6	-10.2	-31.1	16.0	602.0	631.0	340.1	340.1	340.1	1.000137
1440.0	448.0	-11.0	-31.8	16.0	592.0	630.9	348.5	348.5	348.5	1.000134
1430.0	440.0	-11.6	-32.5	16.0	582.0	629.9	350.2	350.2	350.2	1.000132

STATION ALTITUDE 3989.00 FEET MSL  
20 SEP. 82 1300 HRS MDT  
ASCENSION NO. 485

UPPER AIR UNA  
2670020485  
WHITE SANDS

TABLE 10 Cont'd

GEOMETRIC ALTITUDE FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	DEMPPOINT PERCENT	KELVIN. M/CURIC METER	SOUND KNOTS	WIND DATA DIRECTION DEGREES (IN) WIND SPEED KNOTS	INDEX OF REFRACTION
23500.0	926.3	-12.6	-31.1	16.0	572.6	626.9	22.8
24000.0	916.9	-13.6	-33.8	16.3	563.4	627.7	1.000127
24500.0	911.5	-14.9	-34.4	17.0	554.8	626.2	1.000125
25000.0	904.3	-16.1	-35.0	17.7	546.4	624.7	1.000123

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LONG DEG

STATION ALTITUDE 3919.60 FEET MDT  
21 SEP. 62  
ASCENSION NO. 465

MANDATORY LEVELS  
26700±0400  
WHITE CANUS  
TABLE 11

GEOGRAPHIC COORDINATES  
32°40'04.3" LAT DEG  
106°37'33" LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE			WIND DATA		
		AIR DEWPNT DEGREES CENTIGRADE	AIR DEWPNT PERCENT	KEL.HUM. DEGREES (TN)	DIRECTION DEGREES (TN)	SPEED KNOTS	
150.0	5109.	24.1	10.0	41.	160.7	9.1	
000.0	6840.	21.7	5.3	34.	12.7	3.4	
750.0	8664.	17.6	4.5	42.	297.2	9.4	
700.0	10583.	12.6	-1.0	39.	280.6	5.7	
650.0	12605.	7.1	-4.6	43.	193.3	2.5	
600.0	14747.	3.9	-10.2	18.	357.3	5.7	
550.0	17048.	-0.1	-21.9	17.	346.3	9.4	
400.0	19532.	-4.5	-26.5	16.	312.8	6.9	
450.0	22221.	-10.6	-31.5	16.	343.6	17.1	
400.0	25163.	-16.6	-35.3	16.			

STATION ALTITUDE 4691.37 FEET MSL  
24 SEP. 82 1400 HRS MDT  
ASCENSION NO. 96

SIGNIFICANT LEVEL DATA  
2670180093  
LC-37  
TABLE 12

GEODETIC COORDINATES  
32°40'17" LAT DEG  
106°31'22" LON DEG

PRESSURE GEOMETRIC MILLIBARS	ALTITUDE MIL. FEET	TEMPERATURE DEGREES CENTIGRADE	AIR DENSITY PERCENT	HELIUM PERCENT
860.3	4051.4	29.5	12.4	35.0
860.0	4461.4	26.8	8.7	32.0
850.0	5068.1	25.8	6.8	34.0
826.6	5972.3	23.8	9.0	39.0
806.3	6595.3	23.1	6.8	35.0
766.8	8015.5	19.6	7.4	45.0
710.1	10168.4	14.2	-1.0	35.0
700.0	10565.3	13.5	-1.3	36.0
642.8	12494.2	6.3	-5.3	43.0
629.8	13463.7	4.8	-5.0	49.0
613.1	14162.0	3.1	-13.6	28.0
580.1	15270.6	3.1	-18.2	19.0
553.2	17858.9	-1.3	-23.2	17.0
517.9	18620.1	-2.5	-24.1	17.0
510.4	18999.9	-3.5	-25.6	16.0
500.0	19534.2	-4.2	-26.2	16.0
453.4	22900.0	-10.6	-30.8	17.0
426.3	23593.5	-12.8	-26.3	31.0
400.0	24181.4	-16.3	-29.1	32.0

STATION ALTITUDE 4051.37 FEET MSL  
29 SEP. 82 1401 HRS MDT  
ASCENSION NO. 98

UPPER AIR DATA  
267018009U  
LC-37  
TABLE 13

GEODETIC COORDINATES  
32.49175 LAT DEG  
166.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	WELL-HUM. PERCENT	SPEED OF SOUND KNOTS	WIND DATA WIND DIRECTION IN DEGREES FROM NORTH	INDEX OF REFRACTION
4051.3	880.3	29.5	12.4	35.0	1007.0	315.0
4366.8	866.8	26.7	8.7	32.1	1002.0	321.0
5032.0	852.0	25.9	8.8	33.8	987.5	328.9
5500.0	837.9	24.7	8.9	36.7	974.2	379.1
6066.0	822.9	23.7	8.6	38.3	960.6	672.9
6633.7	808.7	23.2	7.1	35.5	946.2	672.2
7000.0	794.6	22.1	7.1	37.9	933.1	671.0
7500.0	780.8	20.9	7.3	41.4	920.0	669.7
8000.0	767.2	19.6	7.4	44.9	906.2	668.3
8500.0	753.7	18.4	5.5	42.7	896.5	666.7
9000.0	740.3	17.1	5.6	40.4	884.9	665.1
9500.0	727.2	15.9	1.6	38.1	873.4	663.5
10000.0	714.4	14.6	-3	35.8	862.1	661.9
10500.0	701.7	13.6	-1.2	35.8	859.6	660.7
11000.0	689.0	12.2	-2.0	37.3	838.6	659.0
11500.0	676.5	10.6	-2.8	38.8	826.2	657.2
12000.0	664.2	9.1	-3.7	40.3	817.7	655.3
12500.0	652.1	7.5	-4.6	41.8	807.4	653.5
13000.0	640.3	6.0	-5.3	44.2	797.1	651.7
13500.0	628.5	4.7	-5.6	47.4	786.2	650.1
14000.0	616.8	3.5	-11.3	32.7	775.6	648.5
14500.0	605.4	3.1	-14.9	25.3	762.5	647.9
15000.0	594.1	3.0	-17.0	21.2	748.4	647.6
15500.0	583.0	2.7	-18.7	16.8	735.6	647.3
16000.0	572.1	1.9	-19.6	16.4	724.1	646.3
16500.0	561.4	1.0	-20.6	18.1	712.7	645.5
17000.0	550.8	.2	-21.5	17.7	701.6	644.3
17500.0	540.5	-7	-22.5	17.3	690.9	643.3
18000.0	529.3	-1.5	-23.3	17.0	679.7	642.3
18500.0	518.4	-2.3	-24.0	17.0	668.6	641.3
19000.0	508.7	-3.5	-25.6	16.0	659.0	639.9
19500.0	499.1	-4.2	-26.2	16.0	648.0	639.1
20000.0	490.8	-5.4	-27.1	16.2	638.5	637.6
20500.0	482.5	-6.7	-28.0	16.4	629.1	636.1
21000.0	472.2	-7.9	-28.9	16.6	620.0	634.0
21500.0	463.5	-9.2	-29.8	16.6	611.0	633.0
22000.0	454.1	-10.5	-30.8	17.0	602.1	631.5
22500.0	445.2	-11.3	-29.1	21.1	591.9	630.6
23000.0	436.5	-12.0	-27.6	25.7	581.6	629.6
23500.0	427.9	-12.7	-26.5	30.2	571.9	629.0

STATION ALTITUDE 4851.37 FEET MSL  
24 SEP. 82 1400 HRS MDT  
ASCENSION NO. 98

## UPPER AIR DATA

2670100090

LC-37

TABLE 13 Cont'd

GEOGRAPHIC COORDINATES  
32.40175 LAT DEG  
106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CURIC METER	WIND DATA		INDEX OF REFRACTION
					SPEED KNOTS	DIRECTION (DEGREES) W.E.G.L.E.S.I.H)	
24666.6	919.4	-13.7	27.0	31.3	562.6	627.7	1.000129
24566.6	911.1	-14.6	27.9	31.6	554.0	626.4	1.000127
25000.0	902.9	-15.9	28.6	31.9	545.3	625.0	1.000125

STATION ALTITUDE 4031.17 FEET MDT  
24 SEP. 62  
ASCENSION NO. 98

MANDATORY LEVELS  
2670160090  
LC-37  
TABLE 14

GEOGRAPHIC COORDINATES  
32.40175 LAT DEG  
106.31232 LON DEG

PRESSURE GEOPOTENTIAL MILLIBARS	FEET	TEMPERATURE		W.E.HUM. PERCENT	WIND DATA DIRECTION DEGREES (TIN)	SPEED KNOTS
		AIR DEGREES	DEPTHT CENTIGRADE			
650.0	5064.	25.0	8.6	34.	329.3	4.6
600.0	6804.	22.6	7.0	37.	356.3	4.7
750.0	8633.	18.0	5.0	42.	307.6	7.5
700.0	10555.	13.5	-1.3	36.	296.3	5.0
650.0	12579.	7.2	-4.6	42.	225.7	5.2
600.0	14719.	3.1	-15.0	2.5.	344.3	8.2
550.0	17022.	.1	-21.0	1.6.	340.5	11.3
500.0	19506.	-4.2	-26.2	1.6.	310.1	9.1
450.0	22196.	-10.9	-30.1	19.	327.4	15.1
400.0	25139.	-16.3	-29.1	32.		

STATION ALTITUDE 3989.69 FEET MSL  
26 SEP. 62 1505 HRS MDT  
ASSEMBLAGE NO. 486

SIGNIFICANT LEVEL DATA  
2670020490  
WHITE SANDS  
TABLE 15

GEODETIC COORDINATES  
32°40'43" LAT DEG  
106°37'33" LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE DEGREES CENTIGRADE	AIR DEPOINT DEGREES	REL.HUM. PERCENT
862.5	3989.0	32.5	8.7	23.0
876.0	4206.3	29.8	5.1	21.0
856.0	5061.9	25.8	4.9	26.0
915.2	6263.0	23.0	4.0	29.0
766.2	8046.4	19.9	1.6	39.0
766.0	10572.3	15.2	-8.0	22.0
638.9	13403.1	5.6	-15.0	21.0
622.5	13762.7	4.8	-15.1	22.0
549.9	17052.8	-5	-23.9	15.0
527.1	18160.9	-2.7	-26.4	14.0
512.2	18907.7	-3.1	-26.8	14.0
506.0	19533.2	-4.7	-26.1	14.0
462.4	21546.4	-8.6	-31.4	14.0
469.0	22288.2	-9.8	-32.2	14.0
466.0	23181.6	-17.0	-36.6	16.0

STATION ALTITUDE 3989.00 FFFT MSL  
29 SEP. 82 1505 HRS HDT  
ASCENSION NO. 986

UPPER AIR DATA  
2670020400  
WHITE SANDS  
TABLE 16

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	AIR DEPOINT PERCENT	REL.HUM. PERCENT	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TIN)	INDEX OF REFRACTION
3989.0	882.5	32.5	8.7	23.0	1001.0	682.7	1.000269
4000.0	882.2	32.4	8.5	22.9	1001.1	682.6	1.000268
4010.0	867.2	28.5	5.1	22.7	997.8	677.9	1.000259
4020.0	852.9	26.2	4.9	25.5	958.2	675.3	1.000257
4030.0	837.7	24.8	4.6	27.0	975.6	673.8	1.000254
4040.0	823.5	23.7	4.2	28.3	962.6	672.5	1.000250
4050.0	809.0	22.6	3.8	29.1	949.3	671.2	1.000246
4060.0	794.9	21.7	3.1	29.4	935.0	670.2	1.000242
4070.0	781.1	20.9	2.5	29.7	922.2	669.2	1.000238
4080.0	767.5	20.0	1.9	30.0	908.9	668.2	1.000233
4090.0	753.9	18.7	1	28.6	897.1	666.6	1.000227
4100.0	740.5	17.4	-1.8	27.0	885.5	664.9	1.000221
4110.0	727.4	16.0	-3.7	25.4	874.1	663.3	1.000216
4120.0	714.5	14.7	-5.7	23.8	862.8	661.7	1.000210
4130.0	701.8	13.4	-7.7	22.2	851.7	660.1	1.000206
4140.0	689.1	12.1	-9.1	21.8	840.3	658.5	1.000202
4150.0	676.6	10.7	-10.5	21.7	829.0	656.9	1.000198
4160.0	664.3	9.4	-11.5	21.5	817.9	655.3	1.000194
4170.0	652.2	8.0	-12.0	21.3	806.9	653.7	1.000191
4180.0	640.3	6.7	-14.0	21.1	796.2	652.1	1.000187
4190.0	628.6	5.4	-15.0	21.3	785.3	650.6	1.000184
4200.0	617.0	4.4	-15.7	21.5	773.5	649.4	1.000181
4210.0	605.4	3.6	-17.0	20.4	761.3	648.4	1.000178
4220.0	594.1	2.8	-18.3	19.4	749.3	647.5	1.000174
4230.0	583.0	2.0	-19.6	18.3	737.6	646.5	1.000171
4240.0	572.2	1.2	-20.9	17.2	726.0	645.5	1.000168
4250.0	561.5	0.4	-22.3	16.2	714.6	644.5	1.000165
4260.0	551.0	-0.6	-23.7	15.1	703.4	643.6	1.000162
4270.0	540.6	-1.4	-24.9	14.6	692.6	642.4	1.000158
4280.0	530.4	-2.4	-26.1	14.1	682.0	641.2	1.000156
4290.0	520.3	-2.9	-26.6	14.0	670.3	640.6	1.000153
4300.0	510.4	-3.3	-26.9	14.0	658.6	640.1	1.000150
4310.0	500.6	-4.6	-28.0	14.0	649.2	638.5	1.000148
4320.0	491.0	-5.7	-28.8	14.0	639.2	637.3	1.000145
4330.0	481.5	-6.7	-29.7	14.0	629.2	636.1	1.000143
4340.0	472.2	-7.7	-30.5	14.0	619.5	634.9	1.000141
4350.0	463.1	-8.7	-31.3	14.0	609.9	633.6	1.000138
4360.0	454.1	-9.4	-31.9	14.0	599.6	632.8	1.000136
4370.0	445.2	-10.3	-32.5	14.1	589.9	631.7	1.000134
4380.0	436.4	-11.6	-33.3	14.5	581.0	630.2	1.000131

STATION ALTITUDE 3469.00 FEET MSL  
29 SEP. 82 1505 HRS MDT  
ASCENSION NO. 486

UPPER AIR DATA  
267002046U  
WHITE SANDS

TABLE 16 Cont'd

GEOGRAPHIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL.HUM, PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (DEGREES) KNOTS	INDEX OF REFRACTION
23500.0	927.0	-12.0	-34.1	14.0	572.3	626.7	1.000129
24000.0	919.3	-14.1	-34.8	15.2	563.7	627.2	1.000127
24500.0	911.0	-15.3	-35.6	15.5	555.2	625.7	1.000125
25000.0	902.9	-16.5	-36.5	15.9	546.9	624.1	1.000123

STATION ALTITUDE 3989.00 FEET MSL  
24 SEP. 02 1505 HRS MDT  
ASCENSION NO. 486

MANDATORY LEVELS  
267002048U  
WHITE SANUS  
TABLE 17

GENETIC COORDINATES  
32.40043 LAT UEG  
106.37033 LON DEG

PRESSURE GEOPOTENTIAL MILLIBARS	FEET	DEGREES	CENTIGRADE	TEMPERATURE		WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS
				AIR DEMPOTENTIAL	HUM. PERCENT		
550.0	50176.	25.6	4.9	26.	23.3	9.6	
500.0	6815.	22.1	3.4	29.	1.1	7.1	
750.0	8641.	18.5	-4	28.	306.7	7.3	
700.0	10562.	15.2	-8.0	22.	300.1	6.4	
650.0	12585.	7.0	-15.0	21.	294.2	4.6	
600.0	14728.	3.2	-17.6	20.	327.7	3.0	
550.0	17026.	-5	-23.9	15.	338.0	10.6	
500.0	19505.	-4.7	-28.1	14.	290.7	10.0	
450.0	22197.	-9.7	-32.1	14.	339.4	17.6	
400.0	25139.	-17.0	-36.8	16.			